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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/893,146 | 06/26/2001 | Thomas Malzbender | 10003322-1 | 3830 |

7590 09/07/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80528-9599

EXAMINER

SANTIAGO, ENRIQUE L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2671

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,146

Applicant(s)

MALZBENDER ET AL.

Examiner

Enrique L. Santiago

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-8 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 contains the limitation "said warping being directly applied to at least one of said exterior voxels and without resampling said three-dimensional model" The applicants allege that support for said limitation is found in the specification (on page 7, line 29 to page 8, line 6), said claim additionally includes the limitation "and without resampling said three-dimensional model" The applicants allege that support for said limitation is found in the specification (on page 1, lines 22 to 26). However after reviewing the specification it is the Examiners understanding that there is no implied, inherent or express mention in the cited pages and lines of "warping being directly applied to at least one of said exterior voxels" or "without resampling" a "three-dimensional model". Therefore it is the Examiners belief that the specification does not support the claimed limitations.

Claims 2-4 are rejected due to their dependence on rejected claim 1.

Allowable Subject Matter

Claim 1 would be allowable if the applicants overcome the rejection under 35 U.S.C. 112, first paragraph, set forth in this Office action, because the prior art alone or in combination among other limitations does not teach or suggest to one of ordinary skill in the art “warping being directly applied to at least one exterior voxel without resampling the three-dimensional model” The closest prior art, US patent application publication no. 2002/0075283 A1, teaches a method for local modification of voxel models. In said method a region to be modified and a warping function are specified. Then the inverse of the desired warping function is used to resample the voxel grid over the region of interest, after which associated surface or other display parameters are updated, however said prior art fails to teach the previously stated limitations contained in the applicants claim.

Claims 6-8 are allowed.

The following is an examiner’s statement of reasons for allowance:

Claim 6 is allowed, because the prior art alone or in combination among other limitations does not teach or suggest to one of ordinary skill in the art “A method of operating a data processing system to generate a three-dimensional model of a scene from a plurality of photographs of said scene, said method comprising the steps of: defining an interior space containing part of said scene, said interior space being divided into a plurality of interior voxels; defining an exterior space surrounding said interior space, said exterior space being divided into a plurality of exterior voxels, at least two of said exterior voxels having different sizes, wherein said exterior voxels are chosen such that said exterior voxels do not overlay one another and there is no space between said exterior voxels in said exterior space; and examining each voxel

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in said interior and exterior spaces to determine if said voxel can be seen in at least two of said photographs, and if said voxel can be seen, determining whether said voxel is empty, wherein said exterior voxels are organized into a plurality of ordered shells, S_i , for $i=1$ to N , each shell having an inner surface and an outer surface and having a plurality of exterior voxels therein, shell S_i having said inner surface in contact with said interior region space, said inner surface shell S_k being in contact with said outer surface of shell S_{k-1} for $k=2$ to N , said exterior voxels in shell S_k having larger volumes than said exterior voxels in shell S_{k-1} for $k=2$ to N . ”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Enrique L Santiago whose telephone number is 703 306-5908. The examiner can normally be reached on Monday to Friday from 7:00 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman whose telephone number is 703 305-9798, can be reached on Monday to Friday from 7:00 A.M. to 3:30 P.M.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

703 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Enrique L. Santiago

September 2, 2004



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600